This application has been carefully reviewed in light of the Office Action dated September 21, 2007. Claims 1 to 13 are pending in the application, of which Claims 1, 7 and 8 are independent. Reconsideration and further examination are respectfully requested.

Claims 1 to 13 were rejected under 35 U.S.C. § 103(a) over U.S. Published Appln. No. 2002/0080391 (Sugiura) in view of U.S. Patent No. 6,354,689 (Couwenhoven). Reconsideration and withdrawal of this rejection are respectfully requested.

The present invention concerns management of a printer with a print head where some of the nozzles may be unavailable because they are inoperative. In one aspect of the invention, a print control apparatus acquires information about unavailable nozzles and groups the remaining available nozzles based on the location of the unavailable nozzles. Using the information about the grouped available nozzles, the print control apparatus then adjusts the feed increment of the printer so as to most effectively use the remaining available nozzles.

Turning to specific claim language, amended independent Claim 1 is directed to a print control apparatus which can be connected to a server that generates print data on the basis of printer information and information to be printed. The apparatus includes an acquisition unit for acquiring printer information which includes non-ejection nozzle information specifying a non-ejection nozzle of a print head from a printer connected to the apparatus; a transmission unit for transmitting information required to specify the information to be printed, and the printer information to the server; a reception unit for receiving print data from the server as a response; and a print control unit for controlling the printer to print the print data. The server generates NULL data for one group of available nozzle groups which are divided by a non-ejection nozzle, and the server generates print data for another group of available nozzle groups based upon the

non-ejection information specifying the non-ejection nozzle acquired by the acquisition unit. The server gives a notice to the printer of reducing a feed amount by the number of unused nozzles preparatory to transmission of the print data.

As an example of operation of an apparatus in accordance with Claim 1, assuming a print head having 128 nozzles, if the 100th nozzle becomes unavailable (that is, becomes a non-ejection nozzle), the remaining available nozzles are divided into two groups by the non-ejection nozzle. The first group will have ninety nine nozzles and the second group has the remaining twenty eight nozzles. In such case, a server in accordance with Claim 1 utilizes only one group of available nozzles, for example., the first group. Thus, the server generates NULL data for the second group and print data for only the first group. In this case, because the second group is not utilized for printing, a substantial number of available nozzles of the print head is equal to the number of nozzles of the first group. Thus, a feed amount of a sheet per scan by the print head must be adjusted for use with the available number of nozzles of the print head. Therefore, the server transmits a notice to the printer of the reduced feed amount.

Applicant respectfully submit that the cited references, namely Sugiura and Couwenhoven, considered either alone or in combination, fail to disclose or suggest all of the features of the print control apparatus of Claim 1. In particular, the cited references, either alone or in combination, fail to disclose or suggest at least the features that a server generates NULL data for one group of available nozzle groups which are divided by a non-ejection nozzle, that the server generates print data for another group of available nozzle groups based upon the non-ejection information specifying the non-ejection nozzle, and that the server gives a notice to the printer of reducing a feed amount by the number of unused nozzles preparatory to transmission of the print data.

In contrast, Sugiura discloses a terminal device which transmits print data to a print server that is sending the print data to a printer managed by the printer server. The printer prints a document based on the print data received from the print server. Furthermore, as disclosed by Couwenhoven, an apparatus may perform multi-pass printing in order to prevent image degradation, for example, such as a generation of a white line, caused by a malfunctioning nozzle.

However, Sugiura and Couwenhoven, either alone or in combination, fail to disclose or suggest a server that divides nozzles of a print head into available nozzle groups by a non-ejection nozzle. Furthermore, the cited references fail to disclose or suggest that the server uses one group of the available nozzle groups by giving notice to the printer of reducing a feed amount by the number of unused nozzles preparatory to transmission of the print data. Finally, the cited references, either alone or in combination, fail to disclose or suggest that the server gives a notice to a printer to reduce the number of available nozzles by the number of unused nozzles.

In light of the deficiencies of Sugiura and Couwenhoven as discussed above, Applicant submits that amended independent Claim 1 is now in condition for allowance and respectfully requests same.

Amended independent Claims 7 and 8 are directed to a method and a computer-executable program product embodied in a computer-readable medium, respectively, substantially in accordance with the apparatus of Claim 1. Accordingly, Applicant submits that Claims 7 and 8 are also now in condition for allowance and respectfully requests same.

The other pending claims in this application are dependent from the independent claims discussed above and are therefore believed allowable for at least the same reasons.

However, as each dependent claim is also deemed to define an additional aspect of the invention, individual consideration of each dependent claim on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, the entire application is believed to be in condition for allowance, and such action is respectfully requested at the Examiner's earliest convenience.

CONCLUSION

No claim fees are believed due; however, should it be determined that additional claim fees are required, the Director is hereby authorized to charge such fees to Deposit Account 50-3939.

Applicant's undersigned attorney may be reached in our Costa Mesa, California office at (714) 540-8700. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,

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